

# Mitutoyo

Catalog No. US-1002



Measuring Instruments Catalog

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02-214-0101

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# Digimatic Holtest

SERIES 468 — Three-Point Internal Micrometers

## FEATURES

- Titanium-coated measuring pins (over 12mm range models) provide excellent durability and impact resistance and allow the instrument to measure right to the bottom of a blind hole.
- Large LCD readout.
- Functions available: Presetting, Zero-setting, Data hold, Data out put, Error alarm, Battery replacement alarm.
- With Ratchet Stop for constant force.
- Measurement can be taken closer to the bottom of the blind bore.
- Can measure deep holes by attaching an Extension rod (optional).
- Setting rings for origin point setting are optional.

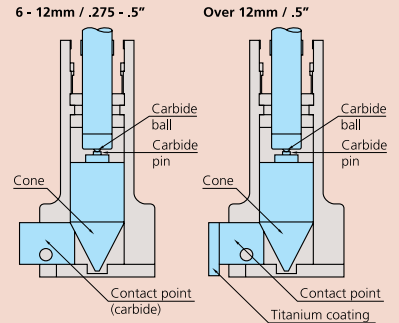


Titanium coated contact points ("10" suffix models only)



## Technical Data

Accuracy: Refer to the list of specifications.  
 Resolution: 0.001mm  
 Contact point: Carbide or titanium coating\*  
\*over 12mm/.5" models  
 Measuring method: Three-point method  
 Display: LCD  
 Battery: SR44 (1 pcs.), 938882  
 Battery life: Approx. 8 months under normal use



## Function

Zero-setting, Data hold, Automatic power ON/OFF, Data output, Preset, inch/mm conversion (inch/mm models)  
 Alarm: Low voltage, Counting value composition error

## Optional Accessory

- 937387: SPC cable (1m)
- 965013: SPC cable (2m)
- 982693: Mounting plate for stand
- 156-101: Stand



## DIMENSION AND MASS

| Range       | L   |
|-------------|-----|
| 6 - 8mm     | 45  |
| 8 - 10mm    | 45  |
| 10 - 12mm   | 45  |
| 12 - 16mm   | 76  |
| 16 - 20mm   | 76  |
| 20 - 25mm   | 91  |
| 25 - 30mm   | 103 |
| 30 - 40mm   | 103 |
| 40 - 50mm   | 102 |
| 50 - 63mm   | 105 |
| 62 - 75mm   | 105 |
| 75 - 88mm   | 105 |
| 87 - 100mm  | 105 |
| 100 - 125mm | 151 |
| 125 - 150mm | 151 |
| 150 - 175mm | 151 |
| 175 - 200mm | 151 |
| 200 - 225mm | 151 |
| 225 - 250mm | 151 |
| 250 - 275mm | 151 |
| 275 - 300mm | 151 |

**Measuring a Blind Hole**  
 The measuring pins held in the jaws permit measuring the diameter of a blind hole right down to the bottom.

| Range       | a    | b   | c    |
|-------------|------|-----|------|
| 2 - 6mm     | —    | —   | 2    |
| 6 - 12mm    | 2    | —   | 2.5  |
| 12 - 20mm   | 0.3  | 5.6 | 3.5  |
| 20 - 30mm   | 0.3  | 8.3 | 5.2  |
| 30 - 50mm   | 0.3  | 13  | 10   |
| 50 - 100mm  | 0.3  | 17  | 14   |
| 100 - 300mm | 12.4 | 21  | 13.8 |

Unit: mm

**SPECIFICATIONS**

| Metric <input type="checkbox"/> Individual <input type="checkbox"/> |           | Inch/Metric <input type="checkbox"/> with titanium coated contact points |                          |
|---|-----------|--|--------------------------|
| Range   | Order No. | Accuracy*  | Extension rod (optional) |
| 6 - 8mm   | 468-161   | ±2µm (within 2µm)  | 100mm (952322)           |
| 8 - 10mm  | 468-162   | ±2µm (within 2µm)  | 100mm (952322)           |
| 10 - 12mm   | 468-163   | ±2µm (within 2µm)  | 100mm (952322)           |
| 12 - 16mm   | 468-164   | ±2µm (within 2µm)  | 150mm (952621)           |
| 16 - 20mm   | 468-165   | ±2µm (within 2µm)  | 150mm (952621)           |
| 20 - 25mm   | 468-166   | ±3µm (within 3µm)  | 150mm (952622)           |
| 25 - 30mm   | 468-167   | ±3µm (within 3µm)  | 150mm (952622)           |
| 30 - 40mm   | 468-168   | ±3µm (within 3µm)  | 150mm (952622)           |
| 40 - 50mm   | 468-169   | ±3µm (within 3µm)  | 150mm (952622)           |
| 50 - 63mm   | 468-170   | ±3µm (within 3µm)  | 150mm (952622)           |
| 62 - 75mm   | 468-171   | ±3µm (within 3µm)  | 150mm (952623)           |
| 75 - 88mm   | 468-172   | ±3µm (within 3µm)  | 150mm (952623)           |
| 87 - 100mm  | 468-173   | ±3µm (within 3µm)  | 150mm (952623)           |
| 100 - 125mm   | 468-174   | ±3µm (within 3µm)  | 150mm (952623)           |
| 125 - 150mm   | 468-175   | ±5µm (within 5µm)  | 150mm (952623)           |
| 150 - 175mm   | 468-176   | ±5µm (within 5µm)  | 150mm (952623)           |
| 175 - 200mm   | 468-177   | ±5µm (within 5µm)  | 150mm (952623)           |
| 200 - 225mm   | 468-178   | ±5µm (within 5µm)  | 150mm (952623)           |
| 225 - 250mm   | 468-179   | ±5µm (within 5µm)  | 150mm (952623)           |
| 250 - 275mm   | 468-180   | ±5µm (within 5µm)  | 150mm (952623)           |
| 275 - 300mm   | 468-181   | ±5µm (within 5µm)  | 150mm (952623)           |

\*Instrumental error excluding quantizing error (maximum error)



468-963-10

**Complete-Unit Set**

Each set includes complete gages (display units and measuring heads for each size).

| Metric <input type="checkbox"/> |           | with titanium coated contact points |                        |         |
|---------------------------------|-----------|-------------------------------------|------------------------|---------|
| Range                           | Order No. | Individual range                    | Setting rings included | Remarks |
| 6 - 12mm                        | 468-981   | 6-8, 8-10, 10-12mm                  | ø8mm, ø10mm            | —       |
| 12 - 25mm                       | 468-982   | 12-16, 16-20, 20-25mm               | ø16mm, ø20mm           | —       |
| 25 - 50mm                       | 468-983   | 25-30, 30-40, 40-50mm               | ø30mm, ø40mm           | —       |
| 50 - 75mm                       | 468-984   | 50-63, 62-75mm                      | ø62mm                  | —       |
| 75 - 100mm                      | 468-985   | 75-88, 87-100mm                     | ø87mm                  | —       |



468-953-10

**Interchangeable-Head Set**

Each set includes one display unit with interchangeable measuring heads of the sizes specified.

| Metric <input type="checkbox"/> |           | with titanium coated contact points  |                        |                    |
|---------------------------------|-----------|--------------------------------------|------------------------|--------------------|
| Range                           | Order No. | Individual range                     | Setting rings included | Remarks            |
| 6 - 12mm                        | 468-971   | 6-8, 8-10, 10-12mm                   | ø8mm, ø10mm            | with extension rod |
| 12 - 20mm                       | 468-972   | 12-16, 16-20mm                       | ø16mm.                 | with extension rod |
| 20 - 50mm                       | 468-973   | 20-25, 25-30, 30-40, 40-50mm         | ø25mm, ø40mm           | with extension rod |
| 50 - 100mm                      | 468-974   | 50-63, 62-75, 75-88, 87-100mm        | ø62mm, ø87mm           | with extension rod |
| 100 - 200mm                     | 468-975   | 100-125, 125-150, 150-175, 175-200mm | ø125mm, ø175mm         | with extension rod |

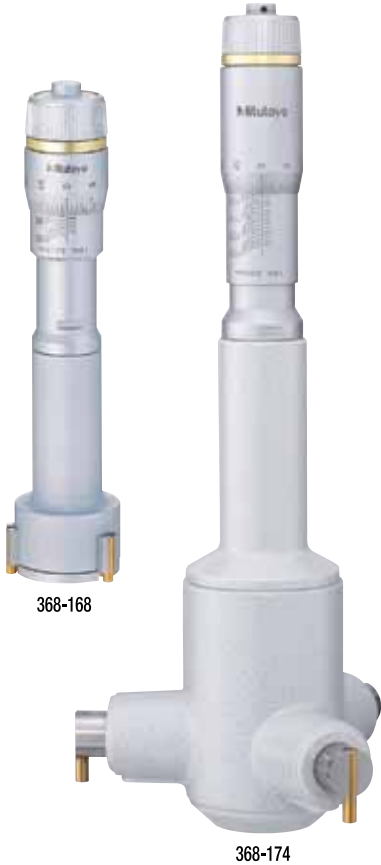
# Holtest

**SERIES 368 — Three-Point/Two-Point Internal Micrometers**

These Holtests are versatile, self-centering three-point internal micrometers for the accurate and efficient direct-measurement of internal diameters. Three anvils, evenly spaced at 120° apart, contact the internal wall surfaces and find true alignment with the axis of the bore for accurate ID measurement.

### FEATURES

- Titanium-coated measuring pins (over 12mm range models) provide excellent durability and impact resistance and allow the instrument to measure right to the bottom of a blind hole.
- Measurement can be taken closer to the bottom of the blind bore.
- Can measure deep holes using an Extension rod (optional) which is available on models over 6mm (.275") measuring range.
- With Ratchet Stop for constant force.
- Setting Rings for zero point adjustment are optional.



368-168

368-174



Two-point contact type



Titanium coated contact points (excluding models up to 12mm/.5")

368-001

### DIMENSION

Unit: mm

| Range     | L   | Range       | L   |
|-----------|-----|-------------|-----|
| 2 - 2.5mm | 12  | 40 - 50mm   | 102 |
| 2.5 - 3mm | 12  | 50 - 63mm   | 105 |
| 3 - 4mm   | 22  | 62 - 75mm   | 105 |
| 4 - 5mm   | 22  | 75 - 88mm   | 105 |
| 5 - 6mm   | 22  | 87 - 100mm  | 105 |
| 6 - 8mm   | 59  | 100 - 125mm | 161 |
| 8 - 10mm  | 59  | 125 - 150mm | 161 |
| 10 - 12mm | 59  | 150 - 175mm | 161 |
| 12 - 16mm | 82  | 175 - 200mm | 161 |
| 16 - 20mm | 82  | 200 - 225mm | 161 |
| 20 - 25mm | 94  | 225 - 250mm | 161 |
| 25 - 30mm | 94  | 250 - 275mm | 161 |
| 30 - 40mm | 102 | 275 - 300mm | 161 |

#### Measuring a Blind Hole

The measuring pins held in the jaws permit measuring the diameter of a blind hole right down to the bottom.

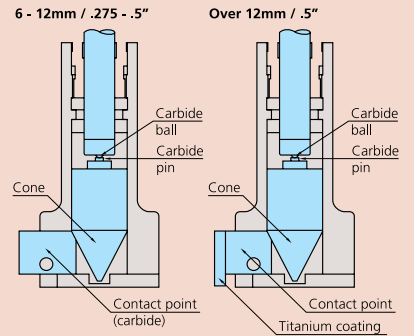
| Range       | a    | b   | c    |
|-------------|------|-----|------|
| 2 - 6mm     | —    | —   | 2    |
| 6 - 12mm    | 2    | —   | 2.5  |
| 12 - 20mm   | 0.3  | 5.6 | 3.5  |
| 20 - 30mm   | 0.3  | 8.3 | 5.2  |
| 30 - 50mm   | 0.3  | 13  | 10   |
| 50 - 100mm  | 0.3  | 17  | 14   |
| 100 - 300mm | 12.4 | 21  | 13.8 |



### Technical Data

Accuracy: Refer to the list of specifications.  
 Graduation: 0.001mm, 0.005mm

| Range     | Measuring method   | Contact-point material         |
|-----------|--------------------|--------------------------------|
| 2 - 3mm   | Two-point method   | Carbide                        |
| 3 - 6mm   | Two-point method   | Carbide                        |
| 6 - 12mm  | Three-point method | Carbide                        |
| over 12mm | Three-point method | Titanium coating (1700-2000Hv) |



### Optional Accessory

— : Extension rod (Refer to the list of specifications.)



Using the optional extension rod



**SPECIFICATIONS**

| Metric      | Individual |
|-------------|------------|
| Range       | Order No.  |
| 2 - 2.5mm   | 368-001    |
| 2.5 - 3mm   | 368-002    |
| 3 - 4mm     | 368-003    |
| 4 - 5mm     | 368-004    |
| 5 - 6mm     | 368-005    |
| —           | —          |
| 6 - 8mm     | 368-161    |
| 8 - 10mm    | 368-162    |
| 10 - 12mm   | 368-163    |
| 12 - 16mm   | 368-164    |
| 16 - 20mm   | 368-165    |
| 20 - 25mm   | 368-166    |
| 25 - 30mm   | 368-167    |
| 30 - 40mm   | 368-168    |
| 40 - 50mm   | 368-169    |
| 50 - 63mm   | 368-170    |
| 62 - 75mm   | 368-171    |
| 75 - 88mm   | 368-172    |
| 87 - 100mm  | 368-173    |
| 100 - 125mm | 368-174    |
| 125 - 150mm | 368-175    |
| 150 - 175mm | 368-176    |
| 175 - 200mm | 368-177    |
| 200 - 225mm | 368-178    |
| 225 - 250mm | 368-179    |
| 250 - 275mm | 368-180    |
| 275 - 300mm | 368-181    |

\*Instrumental error (maximum error)

| Inch              | with titanium coated contact points |
|-------------------|-------------------------------------|
| Accuracy*         | Extension Rod (optional)            |
| ±2µm (within 2µm) | —                                   |
| ±2µm (within 2µm) | —                                   |
| ±2µm (within 2µm) | —                                   |
| ±2µm (within 2µm) | —                                   |
| ±2µm (within 2µm) | —                                   |
| ±2µm (within 2µm) | —                                   |
| ±2µm (within 2µm) | 100mm (952322)                      |
| ±2µm (within 2µm) | 100mm (952322)                      |
| ±2µm (within 2µm) | 100mm (952322)                      |
| ±2µm (within 2µm) | 150mm (952621)                      |
| ±2µm (within 2µm) | 150mm (952621)                      |
| ±3µm (within 3µm) | 150mm (952622)                      |
| ±3µm (within 3µm) | 150mm (952622)                      |
| ±3µm (within 3µm) | 150mm (952622)                      |
| ±3µm (within 3µm) | 150mm (952622)                      |
| ±3µm (within 3µm) | 150mm (952623)                      |
| ±3µm (within 3µm) | 150mm (952623)                      |
| ±3µm (within 3µm) | 150mm (952623)                      |
| ±3µm (within 3µm) | 150mm (952623)                      |
| ±5µm (within 5µm) | 150mm (952623)                      |
| ±5µm (within 5µm) | 150mm (952623)                      |
| ±5µm (within 5µm) | 150mm (952623)                      |
| ±5µm (within 5µm) | 150mm (952623)                      |
| ±5µm (within 5µm) | 150mm (952623)                      |
| ±5µm (within 5µm) | 150mm (952623)                      |
| ±5µm (within 5µm) | 150mm (952623)                      |
| ±5µm (within 5µm) | 150mm (952623)                      |

**Complete-Unit Set**

Each set includes complete gages (micrometer head units and measuring heads for each size).

| Metric     | with titanium coated contact points |                                      |                        |                    |
|------------|-------------------------------------|--------------------------------------|------------------------|--------------------|
| Range      | Order No.                           | Individual range                     | Setting rings included | Remarks            |
| 2 - 3mm    | 368-906                             | 2-2.5, 2.5-3mm                       | ø2.5mm                 | —                  |
| 3 - 6mm    | 368-907                             | 3-4, 4-5, 5-6mm                      | ø4mm, ø5mm             | —                  |
| 6 - 12mm   | 368-901-10                          | 6-8, 8-10, 10-12mm                   | ø8mm, ø10mm            | with extension rod |
| 12 - 20mm  | 368-912                             | 12-16, 16-20mm                       | ø16mm                  | with extension rod |
| 20 - 50mm  | 368-913                             | 20-25, 25-30, 30-40, 40-50mm         | ø25mm, ø40mm           | with extension rod |
| 50 - 100mm | 368-914                             | 50-63, 62-75, 75-88, 87-100mm        | ø62mm, ø87mm           | with extension rod |
| 100-200mm  | 368-915                             | 100-125, 125-150, 150-175, 175-200mm | ø 1 2 5 m m , ø175mm   | with extension rod |



368-906



368-901-10



368-913



368-915

# Holtest (Type II)

SERIES 368 — Three-Point Internal Micrometers

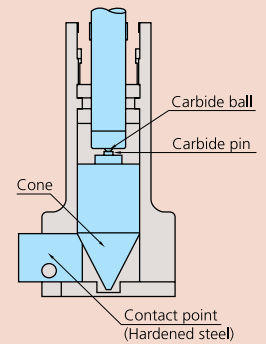
## FEATURES

- The Holtests (type II) have three contact points made of alloyed steel.
- Economy price.
- Measurement can be taken closer to the bottom of the blind bore.
- Can measure deep holes using an Extension Rod (optional).
- With Ratchet Stop for constant force.
- Setting Rings for zero point adjustment are optional.



## Technical Data

Accuracy: Refer to the list of specifications.  
 Graduation: 0.005mm  
 Measuring method: Three-point method  
 Contact point: Hardened steel



## Optional Accessory

- : Extension rod (Refer to the list of specifications.)
- : Setting ring (See page 342.)

## DIMENSION AND MASS

| Range       | L   |
|-------------|-----|
| 12 - 16mm   | 82  |
| 16 - 20mm   | 82  |
| 20 - 25mm   | 94  |
| 25 - 30mm   | 94  |
| 30 - 40mm   | 102 |
| 40 - 50mm   | 102 |
| 50 - 63mm   | 105 |
| 62 - 75mm   | 105 |
| 75 - 88mm   | 105 |
| 87 - 100mm  | 105 |
| 100 - 125mm | 161 |
| 125 - 150mm | 161 |
| 150 - 175mm | 161 |
| 175 - 200mm | 161 |
| 200 - 225mm | 161 |
| 225 - 250mm | 161 |
| 250 - 275mm | 161 |
| 275 - 300mm | 161 |

Unit: mm

### Measuring a Blind Hole

The measuring pins held in the jaws permit measuring the diameter of a blind hole right down to the bottom.

| Range       | a    | b    |
|-------------|------|------|
| 12 - 20mm   | 2.6  | 3.5  |
| 20 - 30mm   | 3.4  | 5.2  |
| 30 - 50mm   | 3.4  | 10   |
| 50 - 100mm  | 3.4  | 14   |
| 100 - 300mm | 19.6 | 13.8 |

**SPECIFICATIONS**

Metric  Individual

| Range       | Order No. | Accuracy          | Extension Rod (optional) |
|-------------|-----------|-------------------|--------------------------|
| 12 - 16mm   | 368-764   | ±2µm (within 2µm) | 150mm (952621)           |
| 16 - 20mm   | 368-765   | ±2µm (within 2µm) | 150mm (952621)           |
| 20 - 25mm   | 368-766   | ±3µm (within 3µm) | 150mm (952622)           |
| 25 - 30mm   | 368-767   | ±3µm (within 3µm) | 150mm (952622)           |
| 30 - 40mm   | 368-768   | ±3µm (within 3µm) | 150mm (952622)           |
| 40 - 50mm   | 368-769   | ±3µm (within 3µm) | 150mm (952622)           |
| 50 - 63mm   | 368-770   | ±3µm (within 3µm) | 150mm (952622)           |
| 62 - 75mm   | 368-771   | ±3µm (within 3µm) | 150mm (952623)           |
| 75 - 88mm   | 368-772   | ±3µm (within 3µm) | 150mm (952623)           |
| 87 - 100mm  | 368-773   | ±3µm (within 3µm) | 150mm (952623)           |
| 100 - 125mm | 368-774   | ±3µm (within 3µm) | 150mm (952623)           |
| 125 - 150mm | 368-775   | ±5µm (within 5µm) | 150mm (952623)           |
| 150 - 175mm | 368-776   | ±5µm (within 5µm) | 150mm (952623)           |
| 175 - 200mm | 368-777   | ±5µm (within 5µm) | 150mm (952623)           |
| 200 - 225mm | 368-778   | ±5µm (within 5µm) | 150mm (952623)           |
| 225 - 250mm | 368-779   | ±5µm (within 5µm) | 150mm (952623)           |
| 250 - 275mm | 368-780   | ±5µm (within 5µm) | 150mm (952623)           |
| 275 - 300mm | 368-781   | ±5µm (within 5µm) | 150mm (952623)           |



368-991



368-992

**Complete-Unit Set**

Each set includes complete gages (micrometer head units and measuring heads for each size).

Metric

| Range       | Order No. | Individual range                     | Setting rings included | Remarks            |
|-------------|-----------|--------------------------------------|------------------------|--------------------|
| 12 - 20mm   | 368-991   | 12-16, 16-20mm                       | ø16mm                  | with extension rod |
| 20 - 50mm   | 368-992   | 20-25, 25-30, 30-40, 40-50mm         | ø25mm, ø40mm           | with extension rod |
| 50 - 100mm  | 368-993   | 50-63, 62-75, 75-88, 87-100mm        | ø62mm, ø87mm           | with extension rod |
| 100 - 200mm | 368-994   | 100-125, 125-150, 150-175, 175-200mm | ø125mm, ø175mm         | with extension rod |



**Technical Data**

Accuracy: Refer to the list of specifications.  
 Resolution: 0.001mm  
 Contact point: Carbide or titanium coating\*  
 (\*over 12mm/1.5" models)  
 Measuring method: Three-point method  
 Display: LCD  
 Battery: SR44 (1 pc.) (938882)  
 Battery life: Approx. 1 year

**Functions**

Zero-setting, Preset, GO/NO-GO judgment, Data hold, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)

**Optional Accessory**

- 937387: SPC cable (1m)
- 965013: SPC cable (2m)
- 952322: Extension rod for 6 - 12mm
- 952621: Extension rod for 12 - 20mm
- 952622: Extension rod for 20 - 50mm
- 952623: Extension rod for 50 - 125mm



**Borematic**

**SERIES 568 — ABSOLUTE Digimatic Snap-Open Bore Gages**

The Borematic enables the operator to take measurements more accurately and more quickly than ever before. One the origin point is set with the ORIGIN button, the Borematic retains the setting for the entire battery life. Therefore no longer repeated origin setting (presetting) is necessary.

**FEATURES**

- Titanium-coated measuring pins (models over 12mm range) provide excellent durability and impact resistance and allow the instrument to measure right to the bottom of a blind hole.
- Large LCD digits of 8.5mm height for error-free reading.
- 330-degree rotatable display unit for easy reading at any angle.
- GO/NO-GO judgment function.
- The ABSOLUTE linear encoder eliminates the fear of over-speed errors.
- With SPC data output.
- Setting rings for origin point setting are optional.
- Can measure deep holes by attaching an optional extension rod.
- Measurement can be taken closer to the bottom of a blind bore.



568-333

568-338-10

Titanium coated contact points (" -10" suffix models only)





### DIMENSION

Unit: mm

#### Measuring a Blind Hole

The measuring pins held in the jaws permit measuring the diameter of a blind hole right down to the bottom.

| Range      | L  |
|------------|----|
| 6 - 12mm   | 83 |
| 12 - 20mm  | 53 |
| 20 - 30mm  | 59 |
| 30 - 50mm  | 67 |
| 50 - 125mm | 75 |

( ): 50-125mm model

| Range      | a   | b   | c   |
|------------|-----|-----|-----|
| 6 - 12mm   | 2   | —   | 2.5 |
| 12 - 20mm  | 0.3 | 5.6 | 3.5 |
| 20 - 30mm  | 0.3 | 8.3 | 5.2 |
| 30 - 50mm  | 0.3 | 13  | 10  |
| 50 - 125mm | 0.3 | 17  | 14  |

### Interchangeable-Contact Head Set



### Complete-Unit Set



### SPECIFICATION

Metric  Individual  with titanium coated contact points

| Range       | Order No.  | Accuracy*         |
|-------------|------------|-------------------|
| 6 - 8mm     | 568-331    | ±5μm (within 5μm) |
| 8 - 10mm    | 568-332    | ±5μm (within 5μm) |
| 10 - 12mm   | 568-333    | ±5μm (within 5μm) |
| 12 - 16mm   | 568-334-10 | ±5μm (within 5μm) |
| 16 - 20mm   | 568-335-10 | ±5μm (within 5μm) |
| 20 - 25mm   | 568-336-10 | ±6μm (within 6μm) |
| 25 - 30mm   | 568-337-10 | ±6μm (within 6μm) |
| 30 - 40mm   | 568-338-10 | ±6μm (within 6μm) |
| 40 - 50mm   | 568-339-10 | ±6μm (within 6μm) |
| 50 - 63mm   | 568-340-10 | ±6μm (within 6μm) |
| 62 - 75mm   | 568-341-10 | ±6μm (within 6μm) |
| 75 - 88mm   | 568-342-10 | ±6μm (within 6μm) |
| 87 - 100mm  | 568-343-10 | ±6μm (within 6μm) |
| 100 - 113mm | 568-344-10 | ±6μm (within 6μm) |
| 112 - 125mm | 568-345-10 | ±6μm (within 6μm) |
| 50 - 75mm   | 568-346-10 | ±6μm (within 6μm) |
| 75 - 100mm  | 568-347-10 | ±6μm (within 6μm) |
| 100 - 125mm | 568-348-10 | ±6μm (within 6μm) |

\*Instrumental error excluding quantizing error (maximum error)

### Complete-Unit Set

Each set includes complete gages (display units and measuring heads for each size).

Metric  Individual  with titanium coated contact points

| Range      | Order No.  | Individual range      | Setting rings included | Remarks               |
|------------|------------|-----------------------|------------------------|-----------------------|
| 6 - 12mm   | 568-981    | 6-8, 8-10, 10-12mm    | ø8mm, ø10mm            | without extension rod |
| 12 - 25mm  | 568-982-10 | 12-16, 16-20, 20-25mm | ø16mm, ø20mm           | without extension rod |
| 25 - 50mm  | 568-983-10 | 25-30, 30-40, 40-50mm | ø30mm, ø40mm           | without extension rod |
| 50 - 75mm  | 568-984-10 | 50-63, 62-75mm        | ø62mm                  | without extension rod |
| 75 - 100mm | 568-985-10 | 75-88, 87-100mm       | ø87mm                  | without extension rod |
| 50 - 100mm | 568-986-10 | 50-75*, 75-100mm*     | ø62mm, ø82mm           | without extension rod |

\*interchangeable contact points (4 sets)

### Interchangeable-Head Set

Each set includes one display unit with interchangeable measuring heads of the sizes specified.

Metric  Individual  with titanium coated contact points

| Range      | Order No.  | Individual range              | Setting rings included | Remarks               |
|------------|------------|-------------------------------|------------------------|-----------------------|
| 6 - 12mm   | 568-971    | 6-8, 8-10, 10-12mm            | ø8mm, ø10mm            | without extension rod |
| 12 - 25mm  | 568-972-10 | 12-16, 16-20, 20-25mm         | ø16mm, ø20mm           | without extension rod |
| 25 - 50mm  | 568-973-10 | 25-30, 30-40, 40-50mm         | ø25mm, ø40mm           | without extension rod |
| 50 - 100mm | 568-975-10 | 50-63, 62-75, 75-88, 87-100mm | ø62mm, ø87mm           | without extension rod |
| 50 - 100mm | 568-976-10 | 50-75*, 75-100mm*             | ø62mm, ø82mm           | without extension rod |

\*interchangeable contact points (4 sets)

# Tubular Inside Micrometers

## SERIES 133 — Single Rod Type

### Technical Data

Accuracy: Refer to the list of specifications.  
Graduation: 0.01mm

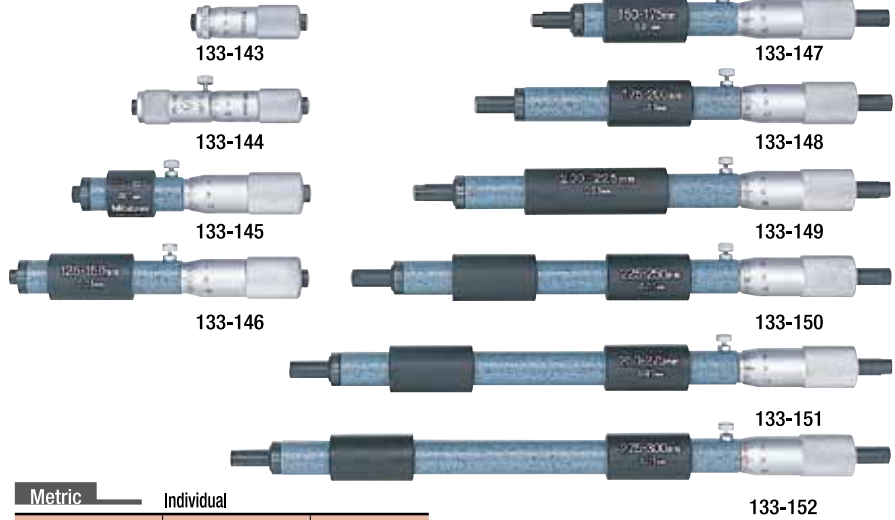


### FEATURES

- With locking clamp.
- Zero point can be readjusted by twisting the micrometer head sleeve. A key wrench is supplied.
- Clear, crisp graduations on the satin chrome finished micrometer head.
- Carbide-tipped measuring faces.

### SPECIFICATIONS

| Metric      | Individual |          |
|-------------|------------|----------|
| Range       | Order No.  | Accuracy |
| 50 - 75mm   | 133-143    | ±3µm     |
| 75 - 100mm  | 133-144    | ±4µm     |
| 100 - 125mm | 133-145    | ±5µm     |
| 125 - 150mm | 133-146    | ±5µm     |
| 150 - 175mm | 133-147    | ±5µm     |
| 175 - 200mm | 133-148    | ±5µm     |
| 200 - 225mm | 133-149    | ±5µm     |
| 225 - 250mm | 133-150    | ±6µm     |
| 250 - 275mm | 133-151    | ±6µm     |
| 275 - 300mm | 133-152    | ±6µm     |
| 300 - 325mm | 133-153    | ±7µm     |
| 325 - 350mm | 133-154    | ±7µm     |
| 350 - 375mm | 133-155    | ±7µm     |
| 375 - 400mm | 133-156    | ±8µm     |
| 400 - 425mm | 133-157    | ±8µm     |
| 425 - 450mm | 133-158    | ±8µm     |
| 450 - 475mm | 133-159    | ±9µm     |
| 475 - 500mm | 133-160    | ±9µm     |
| 500 - 525mm | 133-161    | ±9µm     |
| 525 - 550mm | 133-162    | ±10µm    |
| 550 - 575mm | 133-163    | ±10µm    |
| 575 - 600mm | 133-164    | ±10µm    |
| 600 - 625mm | 133-165    | ±11µm    |
| 625 - 650mm | 133-166    | ±11µm    |
| 650 - 675mm | 133-167    | ±11µm    |
| 675 - 700mm | 133-168    | ±12µm    |



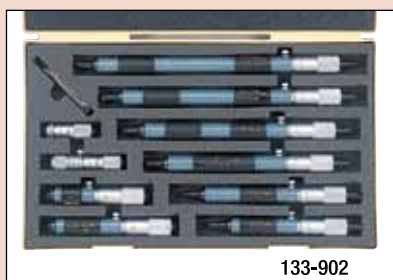
| Metric       | Individual |          |
|--------------|------------|----------|
| Range        | Order No.  | Accuracy |
| 700 - 725mm  | 133-169    | ±12µm    |
| 725 - 750mm  | 133-170    | ±12µm    |
| 750 - 775mm  | 133-171    | ±13µm    |
| 775 - 800mm  | 133-172    | ±13µm    |
| 800 - 825mm  | 133-173    | ±13µm    |
| 825 - 850mm  | 133-174    | ±14µm    |
| 850 - 875mm  | 133-175    | ±14µm    |
| 875 - 900mm  | 133-176    | ±14µm    |
| 900 - 925mm  | 133-177    | ±15µm    |
| 925 - 950mm  | 133-178    | ±15µm    |
| 950 - 975mm  | 133-179    | ±15µm    |
| 975 - 1000mm | 133-180    | ±16µm    |

| Metric                   | Micrometer set |  |
|--------------------------|----------------|--|
| Range                    | Order No.      | Assortment of micrometers  |
| 50 - 150mm(4 mikes/set)  | 133-901        | • 133-143, 133-144, 133-145, 133-146<br>• with fitted case   |
| 50 - 300mm(10 mikes/set) | 133-902        | • 133-143, 133-144, 133-145, 133-146, 133-147, 133-148, 133-149, 133-150, 133-151, 133-152<br>• with fitted case |

### DIMENSION

Unit: mm

| Order No. | L   | a  | b  |
|-----------|-----|----|----|
| 133-145   | 100 | 5  | 3  |
| 133-146   | 125 | 5  | 3  |
| 133-147   | 150 | 18 | 15 |
| 133-148   | 175 | 18 | 15 |
| 133-149   | 200 | 18 | 15 |
| 133-150   | 225 | 18 | 15 |
| 133-151   | 250 | 18 | 15 |
| 133-152   | 275 | 18 | 15 |
| 133-153   | 300 | 18 | 15 |
| 133-154   | 325 | 18 | 15 |
| 133-155   | 350 | 18 | 15 |
| 133-156   | 375 | 18 | 15 |
| 133-157   | 400 | 18 | 15 |
| 133-158   | 425 | 18 | 15 |
| 133-159   | 450 | 18 | 15 |
| 133-160   | 475 | 18 | 15 |
| 133-161   | 500 | 18 | 15 |
| 133-162   | 525 | 18 | 15 |
| 133-163   | 550 | 18 | 15 |
| 133-164   | 575 | 18 | 15 |
| 133-165   | 600 | 18 | 15 |
| 133-166   | 625 | 18 | 15 |
| 133-167   | 650 | 18 | 15 |
| 133-168   | 675 | 18 | 15 |
| 133-169   | 700 | 18 | 15 |
| 133-170   | 725 | 18 | 15 |
| 133-171   | 750 | 18 | 15 |
| 133-172   | 775 | 18 | 15 |
| 133-173   | 800 | 18 | 15 |
| 133-174   | 825 | 18 | 15 |
| 133-175   | 850 | 18 | 15 |
| 133-176   | 875 | 18 | 15 |
| 133-177   | 900 | 18 | 15 |
| 133-178   | 925 | 18 | 15 |
| 133-179   | 950 | 18 | 15 |
| 133-180   | 975 | 18 | 15 |



133-902

# Inside Micrometers

SERIES 141 — Interchangeable Rod Type

## FEATURES

- Wide range of ID measurements with interchangeable rods.
- Each interchangeable rod is marked with its measuring range.
- The sizes of interchangeable rods can be adjusted with spacing collars.
- Both micrometer head and furnished rods are satin-chrome finished throughout.



## SPECIFICATIONS

| Metric       |                    |                           |             |
|--------------|--------------------|---------------------------|-------------|
| Range        | Order No.          | Travel of micrometer head | Remarks     |
| 25 - 32mm    | 141-001 / 141-003* | 7mm                       | —           |
| 25 - 50mm    | 141-101 / 141-103* | 7mm                       | with 2 rods |
| 50 - 63mm    | 141-025 / 141-027* | 13mm                      | —           |
| 50 - 200mm   | 141-205 / 141-211* | 13mm                      | with 3 rods |
| 50 - 300mm   | 141-206 / 141-212* | 13mm                      | with 5 rods |
| 200 - 225mm  | 141-009 / 141-011* | 25mm                      | —           |
| 200 - 500mm  | 141-117            | 25mm                      | with 3 rods |
| 200 - 1000mm | 141-118            | 25mm                      | with 8 rods |

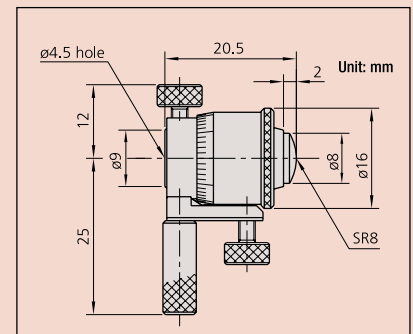
\*with carbide tipped face

## Technical Data

Accuracy:  $\pm(6+L/50)\mu\text{m}^*$   
 \* L = Maximum measuring length (mm)  
 Fraction rounded up  
 Graduation: 0.01mm



## DIMENSION



# Digimatic Tubular Inside Micrometers

SERIES 337 — Extension Rod Type / SERIES 339 — Extension Pipe Type

## FEATURES

- Wide range of ID measurements by combining extension rods (pipes) and anvils with the micrometer head.
- The 339 series uses highly-durable extension pipes.
- Carbide-tipped measuring faces.



337-201



**Technical Data**

Accuracy:  $\pm(3+n+L/50)\mu\text{m}^*$   
 Excluding quantizing error  
\*n = Number of rod, L = Maximum measuring length (mm), Fraction rounded up

Resolution: 0.001mm  
 Display: LCD  
 Battery: SR44 (1 pcs.), 938882  
 Battery life: Approx. 8 months under normal use

**Function**

Zero-setting, Preset, Data hold, Automatic power ON/OFF, Data output, inch/mm conversion (inch/mm models)  
 Alarm: Low voltage, Counting value composition error

**Optional Accessory**

937387: SPC cable (1m)  
 965013: SPC cable (2m)



**Technical Data**

Accuracy:  
 • Series 137, 139:  $\pm(3+n+L/50)\mu\text{m}^*$   
 • Series 140:  $\pm(7+n+L/50)\mu\text{m}^*$   
\*n = Number of rod, L = Maximum measuring length (mm), Fraction rounded up

Graduation: 0.01mm or .001"

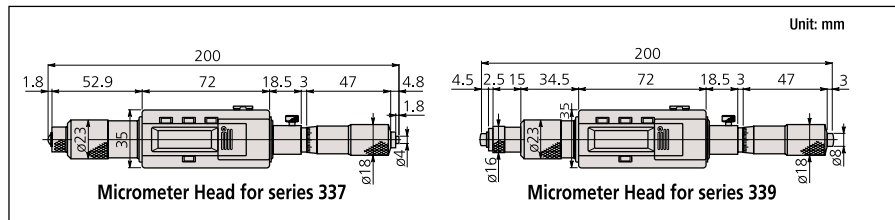


339-291

| Metric       | Extension rod type |                           |  |
|--------------|--------------------|---------------------------|--|
| Range        | Order No.          | Travel of micrometer head | Extension rods                           |
| 200 - 1000mm | 337-201            | 25mm                      | 25mm, 50mm, 100mm (2 pcs.), 200mm, 300mm |
| 200 - 1500mm | 337-202            | 25mm                      | 25mm, 50mm, 100mm, 200mm, 300mm (3 pcs.) |

| Metric       | Extension pipe type |                           |   |
|--------------|---------------------|---------------------------|---|
| Range        | Order No.           | Travel of micrometer head | Extension pipes                                   |
| 200 - 1000mm | 339-291             | 25mm                      | 25mm, 50mm, 100mm, 200mm, 400mm                   |
| 200 - 2000mm | 339-292             | 25mm                      | 25mm, 50mm, 100mm, 200mm (2 pcs.), 400mm (3 pcs.) |

**DIMENSION**

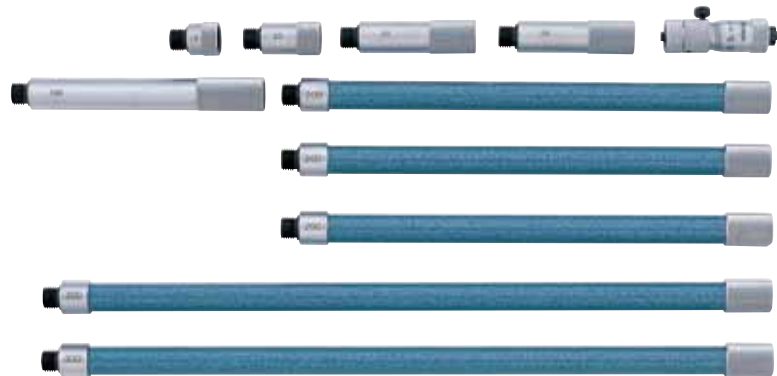


# Tubular Inside Micrometers

- SERIES 137 — Extension Rod Type,
- SERIES 139 — Extension Pipe Type,
- SERIES 140 — Extension Pipe Type

**FEATURES**

- Wide range of ID measurements by combining extension rods (pipes) and anvils with the micrometer head.
- The 139 and 140 series use highly-durable/large-diameter extension pipes.
- Carbide-tipped measuring faces are available. (series 137)



137-205



139-177

**SPECIFICATIONS**

| Metric      |                    | Extension rod type        |  |
|-------------|--------------------|---------------------------|--|
| Range       | Order No.          | Travel of micrometer head | Extension rods   |
| 50 - 63mm   | 137-011 / 137-013* | 13mm                      | —  |
| 50 - 150mm  | 137-201 / 137-206* | 13mm                      | 13mm, 25mm, 50mm   |
| 50 - 300mm  | 137-202 / 137-207* | 13mm                      | 13mm, 25mm, 50mm (2 pcs.), 100mm                                 |
| 50 - 500mm  | 137-203 / 137-208* | 13mm                      | 13mm, 25mm, 50mm (2 pcs.), 100mm, 200mm                          |
| 50 - 1000mm | 137-204 / 137-209* | 13mm                      | 13mm, 25mm, 50mm (2 pcs.), 100mm, 200mm (2 pcs.), 300mm          |
| 50 - 1500mm | 137-205 / 137-210* | 13mm                      | 13mm, 25mm, 50mm (2 pcs.), 100mm, 200mm (3 pcs.), 300mm (2 pcs.) |

\*with carbide tipped face

| Metric        |           | Extension pipe type       |   |
|---------------|-----------|---------------------------|---|
| Range         | Order No. | Travel of micrometer head | Extension pipes                                     |
| 100 - 125mm   | 139-001   | 25mm                      | —   |
| 100 - 500mm   | 139-173   | 25mm                      | 25mm, 50mm, 100mm, 200mm                            |
| 100 - 900mm   | 139-174   | 25mm                      | 25mm, 50mm, 100mm, 200mm, 400mm                     |
| 100 - 1300mm  | 139-175   | 25mm                      | 25mm, 50mm, 100mm, 200mm, 400mm (2 pcs.)            |
| 100 - 1700mm  | 139-176   | 25mm                      | 25mm, 50mm, 100mm, 200mm, 400mm (3 pcs.)            |
| 100 - 2100mm  | 139-177   | 25mm                      | 25mm, 50mm, 100mm, 200mm, 400mm (4 pcs.)            |
| 1000 - 2000mm | 140-157   | 50mm                      | 50mm, 100mm (2 pcs.), 200mm, 500mm                  |
| 1000 - 3000mm | 140-158   | 50mm                      | 50mm, 100mm (2 pcs.), 200mm, 500mm, 1000mm          |
| 1000 - 4000mm | 140-159   | 50mm                      | 50mm, 100mm (2 pcs.), 200mm, 500mm, 1000mm (2 pcs.) |
| 1000 - 5000mm | 140-160   | 50mm                      | 50mm, 100mm (2 pcs.), 200mm, 500mm, 1000mm (3 pcs.) |

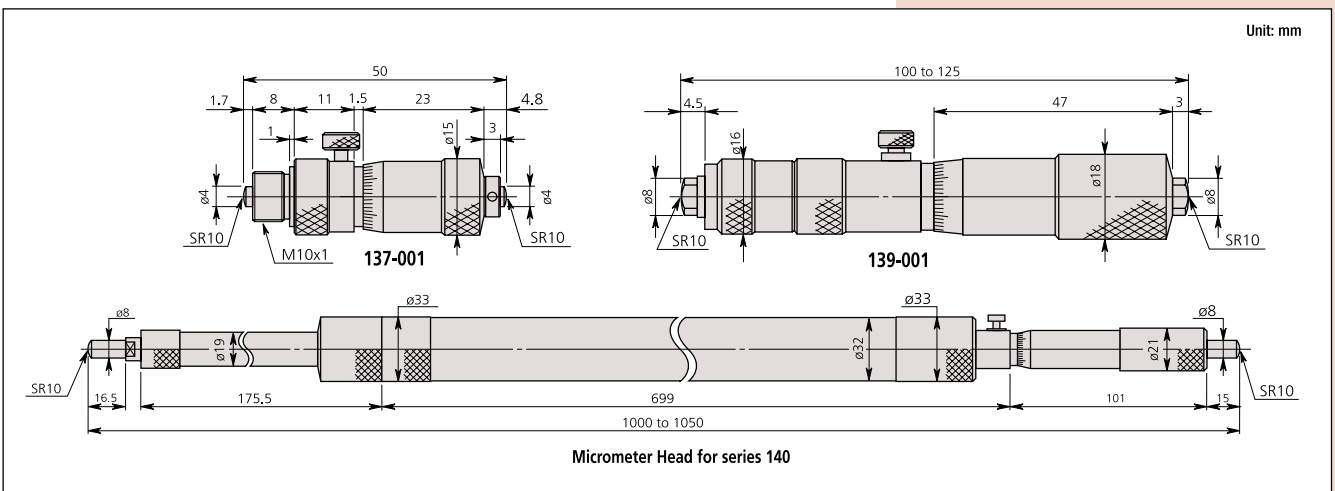


137-011



139-001

**DIMENSION**



# Inside Micrometers

SERIES 345, 145 — Caliper Type

## FEATURES

- Caliper type jaws are made of high-grade, tool steel.
- Locking clamp for positive locking of spindle.
- Satin-chrome finished.
- A special holder is available to be used with Mitutoyo Micrometer Stand.



## Technical Data

Accuracy: Refer to the list of specifications.  
(excluding quantizing error for digital models)  
Resolution\*: 0.01mm  
Graduation\*\*: 0.01mm  
Measuring faces: Carbide tipped  
Display\*: LCD  
Battery\*: SR44 (1 pc.), 938882  
Battery life\*: Approx. 8 months under normal use  
\*Digital models \*\*Analog models

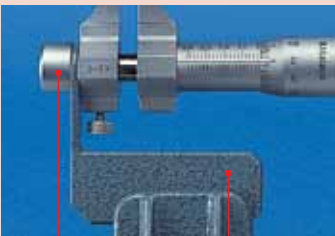
## Function of Digital Model

Zero-setting, Preset, Data hold, Automatic power ON/OFF, Data output, inch/mm conversion (inch/mm models)  
Alarm: Low voltage, Counting value composition error

## Optional Accessory

05CZA662: SPC cable with data switch (1m)  
05CZA663: SPC cable with data switch (2m)

For 145-185, 145-186, 145-193, 145-194

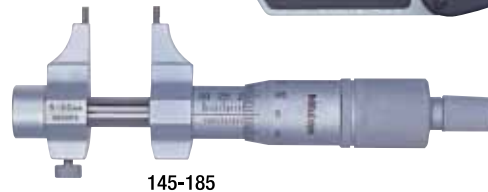


Cap (300401)

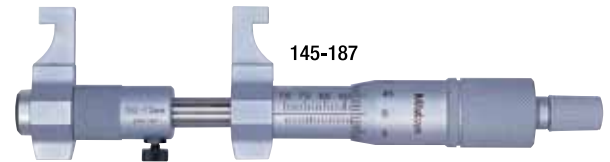
Holder (300400)



345-250



145-185



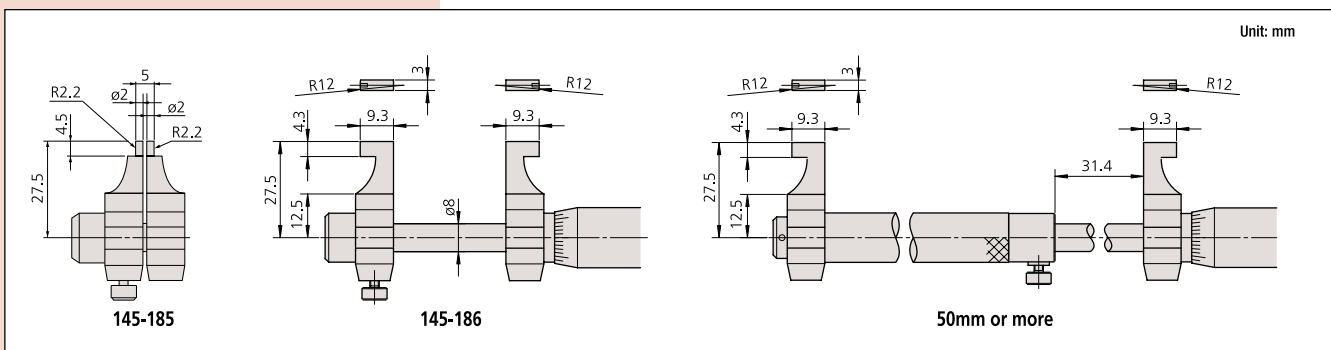
145-187

## SPECIFICATIONS

| Metric    |           | Digital model | Accuracy |
|-----------|-----------|---------------|----------|
| Range     | Order No. |               |          |
| 5 - 30mm  | 345-250   |               | ±5µm     |
| 25 - 50mm | 345-251   |               | ±6µm     |

| Metric      |           |  | Accuracy |
|-------------|-----------|--|----------|
| Range       | Order No. |  |          |
| 5 - 30mm    | 145-185   |  | ±5µm     |
| 25 - 50mm   | 145-186   |  | ±6µm     |
| 50 - 75mm   | 145-187   |  | ±7µm     |
| 75 - 100mm  | 145-188   |  | ±8µm     |
| 100 - 125mm | 145-189   |  | ±9µm     |
| 125 - 150mm | 145-190   |  | ±9µm     |
| 150 - 175mm | 145-191   |  | ±10µm    |
| 175 - 200mm | 145-192   |  | ±10µm    |
| 200 - 225mm | 145-217   |  | ±11µm    |
| 225 - 250mm | 145-218   |  | ±11µm    |
| 250 - 275mm | 145-219   |  | ±12µm    |
| 275 - 300mm | 145-220   |  | ±12µm    |

## DIMENSION



# Inside Micro Checker

**SERIES 515**

## FEATURES

- The Inside Micro Checker is designed to efficiently check the zero point of a tubular inside micrometer.
- Each measuring block is made of zirconia-based ceramic and it is free from deterioration and dimensional changes over time.



515-585

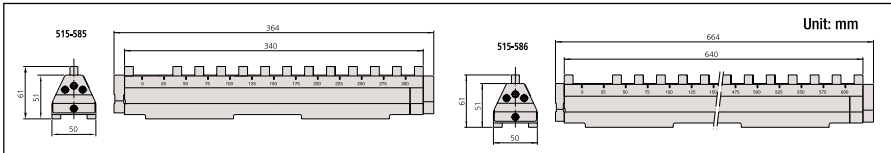
## SPECIFICATIONS

| Range | Order No. | Length to check   |
|-------|-----------|---|
| 300mm | 515-585   | 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300mm   |
| 600mm | 515-586   | 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, 350, 375, 400, 425, 450, 475, 500, 525, 550, 575, 600mm |



Standard accessory

## DIMENSION



# Bore Gages

**SERIES 526 — for Extra Small Holes**

These Bore Gages measure diameters of small holes. The radial displacement of split-ball contact is converted to axial displacement of measuring rod, which is shown on the dial indicator.

## FEATURES

- Optional stand (215-120M) is available for efficient measurement of multiple small holes.



526-172



526-127



## Technical Data

Block pitch accuracy:  $\pm(0.001+L/150000)\text{mm}^*$   
 \*L = Length to check (mm)

## Optional Accessory

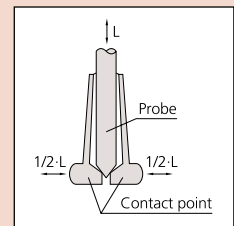
- 602160: Wooden case for 300mm Inside Micro Checker
- 602163: Wooden case for 600mm Inside Micro Checker



## Technical Data

Accuracy: 4 $\mu\text{m}$   
 Indication stability: 2 $\mu\text{m}$   
 Graduation: 0.01mm, 0.001mm

## Contact Point



## Optional Accessory

- 215-120M: Bore gage stand

